

long been known to present a peculiar and highly-organised structure. *Pecten* is perhaps the most highly coloured of all molluscous animals. The strength and activity of the movements by which it evades its chief enemy, the starfish, form a remarkable contrast to the lethargy of most bivalves. It is therefore with particular pleasure that we welcome a monograph on the large British species, *Pecten maximus*.

To the considerable body of existing facts on this animal which have been drawn upon by the author, he has added confirmatory and in some cases new evidence from his own dissections and observations. The result is an admirable piece of work, which will be of great assistance to all who wish to gain acquaintance with this especially interesting and accessible type of shellfish.

The structure of *Pecten* is so largely modified in association with its active life that Mr. Dakin has been well advised in giving an introductory sketch of its habits and of their change during life. When the free-swimming larva first settles down, the only mode of progression is that of crawling by means of the mobile foot. A little later, the "byssus" spins its threads and forms an anchorage by the help of the foot. In some species this mode of attachment is permanent, but in most it is rarely employed when adult life is reached. By that time, or even before, the mantle, and shell secreted by it, have assumed the peculiar form that enables both forward and backward leaping movements to be executed.

Among the specially good features of this work may be mentioned the biochemistry of the digestive gland and the account of the eye structure. Mr. Dakin has the advantage of knowing the structure of other lamellibranchs, and his book gains much from the comparative method. He has studied *Pecten* at different places, and knows the variation which it exhibits. As a result we have a most careful, workmanlike, and fully illustrated account. The author and publisher are to be congratulated on the appearance of this valuable addition to biological literature. The only disappointing section is that on development, our knowledge of which is very deficient. We hope the author will be able to add to it in a subsequent paper.

A STUDY OF THE AUSTRIAN SEA-BOARD.

The Shores of the Adriatic. The Austrian Side. By F. Hamilton Jackson. Pp. xv+420; with numerous woodcuts, photographs, plans, and maps. (London : John Murray, 1908.) Price 21s. net.

THOSE who have had the pleasure of reading Mr. Jackson's previous volume on the Italian Adriatic towns will be very pleased to find that the author has extended his researches to the "other shore, you know, upon the other side." The tour outlined in this volume commences at Aquileia, somewhat west of Trieste, and extends down to the Bocche di Cattaro, thus covering Istria and Dalmatia. Geographically speaking, the two shores of the Adriatic differ widely, the Italian side being an almost unbroken flat coast-line, while here a nearly continuous chain of

islands extends from Pola down to Ragusa, and a number of arms of the sea furnish excellent harbours well shut in by mountains. The vegetation of the district is described as distinctly Mediterranean, while the only fault of the climate appears to be the prevalence of a cold north wind.

The people of these districts are of a very different race from the Italians over the water, and a fair account is given of their history, customs, proverbs, and superstitions. At the present time the Croat majority is abolishing the use of Italian in schools, and the author advises those who wish to acquire a knowledge of Dalmatia without learning Croat to do so before Italian is forgotten. In this attempt to perpetuate multiplicity of languages, the Dalmatians are very like the British, and we noticed another resemblance of a small kind in one or two of their superstitions.

The descriptions lead us to believe that the interest of the tour is not so exclusively confined to rummaging over old churches, as on the Italian side, but that the architectural features, as well as the relics in the treasuries of the churches, are none the less worthy of attention, and a study of the reciprocal influences of the two shores, and of the extent to which the architectural similarity is due to Eastern influence, forms a suitable concluding chapter.

The fact that the author met no English on his second tour would have been considered remarkable thirty years ago, when middle-class English formed the main bulk of European travellers. At the present time the absence of English visitors is equally noticeable, even in many of the best-known tourist and health resorts. It is now no longer necessary to go to Dalmatia to get away from one's compatriots; on the other hand, there is perhaps less inducement for those who travel to keep to the beaten tracks, and they may evidently have a very enjoyable tour in these Adriatic provinces.

The illustrations are partly from photographs, but mainly from line drawings, which well show up the beautiful carving and ornamentation in the churches. A number of plans are also given, and if the author had not obtained a special permit from the Austrian Government his artistic and photographic studies would probably have got him into great trouble. We commented on the absence of a map in the Italian volume. Here there is a map, and it is most useful.

OUR BOOK SHELF.

Les Planètes et leur Origine. By Ch. André. Pp. 285. (Paris : Gauthier-Villars, 1909.) Price 8 francs. Like Gaul, M. André's book is divided into three parts. The first part is devoted to planets, the second to satellites, and the third to the formation of the planetary system.

The book is well written and well illustrated. It deals very thoroughly with an important branch of astronomy. It will serve the purpose both of a popular treatise and of a book of reference.

The comparison of orbital motion with theory seems to have been beyond the plan of the author. In other respects it is hardly possible to notice the omission of any matter relevant to the title of the book.

The author decides in favour of a rotation period for both Mercury and Venus approximating to that of the earth. He gives an excellent *résumé* of Prof. Poynting's investigations of temperature. He obtains for Mercury 193° C., for Venus 66° C., and for the earth, by the same method, 16° C. This last result inspires some confidence in the two former. M. André decides against the canals of Mars. It is one of the many evidences of the up-to-date character of the book that reference is made to the experiments by Mr. Maunder and Mr. Evans on this question with the help of the boys of the Royal Hospital School at Greenwich.

The chapter on minor planets is excellent. M. Mascart has, however, recently covered the same ground. The present volume contains a reference to 1906 TG. The chapters on Uranus and Neptune consist for the most part of what is now ancient history. The author considers that planets inside Mercury or outside Neptune would have been already discovered if they existed.

In the second part the author gives a historical account of various announcements of a satellite of Venus. His chapter on the satellites of Mars, and the first half of the following chapter, is necessarily somewhat hackneyed. The latter chapter concludes with Mr. Melotte's discovery of Jupiter's eighth satellite and Mr. Crommelin's announcement that the orbit was retrograde (*fait absolument inattendu*). Mr. Crommelin's original period of three years and a half, based on the supposition of a circular orbit, enables one to date the writing of this paragraph to within a month or two.

The interest of the next chapter centres on Phoebe and the still unconfirmed tenth satellite. The last chapter of the second part refers to the masses of the planets and their satellites.

The third part, on the formation of the planetary system, describes Laplace's nebular hypothesis and its subsequent extensions and modifications by Roche, Darwin, Faye, and Stratton. On p. 239, in four short paragraphs, we have a statement of the case against Laplace's hypothesis. In these paragraphs the retrograde motion of Jupiter's eighth satellite is again mentioned.

The Care of Natural Monuments, with Special Reference to Great Britain and Germany. By Prof. H. Conwentz. Pp. xi+185; illustrated. (Cambridge: University Press, 1909.) Price 2s. 6d. net.

The title of this little work scarcely gives a sufficient clue to the nature of its contents, as there are comparatively few persons who would regard wild mammals or wild birds as "natural monuments." As he tells us in the introduction, the author has himself felt this difficulty, but has nevertheless used the term as a translation of the German "*Naturdenkmal*"; though we fear this rendering may result in checking the sale of an excellent and praiseworthy volume. Prof. Conwentz writes as one having authority, since he is the Prussian Government commissioner for the care of natural monuments. On this subject he delivered an address at the Leicester meeting of the British Association in 1907; and it is that lecture which forms the groundwork of the book now before us. The book is divided into two sections—"Nature Threatened" and "Nature Protected"—the former particularising the various natural objects and types of scenery which require protection, and the latter what has been and is being done in this direction in different countries, but more especially in the United Kingdom and Germany. On the whole, the author appears to consider that we are doing our duty as regards the protection of the indigenous fauna

fairly well, and bestows unstinted commendation on the action of local authorities in establishing reservations in various parts of the country. He is, however, of opinion that more attention might be devoted to securing small areas as reserves of this nature; and as regards other "natural monuments" suggests that private landowners might be induced to do more in the way of conservation than is at present the case. It is also suggested that the central committee for the study and survey of British vegetation might include in its programme the protection of characteristic associations of plants, as well as of single rare species. By directing attention to what has been done and what remains to be done, the appearance of the volume will doubtless serve to awaken renewed interest in the subject. R. L.

The Mineral Kingdom. By Prof. R. Brauns. Translated, with additions, by L. J. Spencer. With 91 plates (73 of which are coloured). (Stuttgart: Fritz Lehmann; London: Williams and Norgate, 1908.) Parts i. to v., price 2s. net each.

WHILE popular introductions to botany and zoology are numerous and find a ready sale, little has been done to familiarise the general public with the appearance and characters of the commoner minerals. The chief obstacle has been found in the difficulty of depicting the colour and lustre of minerals so accurately that they may be recognised without the employment of the ordinary methods of determination.

To judge by the five parts which have already appeared an unusually successful attempt has been made in the present work to solve the problem of the representation of minerals by colour printing. The reproductions of topaz, tourmaline, and phosphogelite are excellent, and even minerals with metallic lustre are in most cases very effectively rendered. The plates measure 9 $\frac{1}{4}$ inches by 6 $\frac{1}{2}$ inches, and, as a rule, contain numerous coloured figures.

The book can be recommended to all who wish to take up the study of mineralogy, and have not the opportunity of referring to a collection containing as many examples as those illustrated in these plates.

The text is clear and readable, and comprises a simple introduction to the principles and methods of the science, as well as a detailed account of the different mineral species.

J. W. E.

Man in the Light of Evolution. By Dr. J. M. Tyler. Pp. xiv+231. (London: Appleton and Co., 1909.) Price 6s. net.

THIS is the sort of book about which there is no need to say anything harsh. It is calculated to produce a vague edification in the mind of the unscientific reader. Prof. Tyler's attitude towards disputed problems of evolutionary science is so conciliatory and non-committal that one fails, for instance, to discover what view he holds about the inheritance of acquired characteristics, or whether he has any view of his own. He alludes in a distant way, but always politely, to Mr. Darwin, Mr. Haeckel, and so on. (But why is poor Mr. A. J. Balfour "Balfour"?) So far as he has any point to make, it would seem to be this, that the springs of progress lie not so much in the environment as in our own "higher powers," and that these "higher powers" consist especially in our moral and religious tendencies. All this may be quite true; but it cannot be said that our author helps in the slightest degree towards a clear understanding either of what those are or of how they have come about. A perfectly worthless bibliography is appended, in which the name of J. M. Tyler appears more than once, but that of E. B. Tylor not at all.